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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,834	01/03/2001	Simon Frederick Thomas Froom	608-241	9975

7590 03/27/2002

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EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 03/27/2002

13

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/752,834

Applicant(s)

FROOM ET AL.

Examiner

T. Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 December 2001.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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***Final Rejection***

***The Status of Claims***

Claims 1-15 have been rejected.

***Claim Rejections - 35 USC § 112***

The rejection of the Claim 1 is maintained due to the failure to modify the claim.

***Claim Rejections-35 USC 103***

1. Applicants' argument filed 12/26/2001 have been fully considered but they are not persuasive.

*Rejection of claims 1-15 under 35 U.S.C. 103(a) as being unpatentable over Atkins et al (EP 0757027 A1) in view of Nishino et al's (Toku-Kai-Hei 7-71907) and Sato (U.S. 4,465,852).*

The rejection of Claims 1-15 under 35 U.S.C. 103(a) as being unpatentable over Atkins et al (EP 0757027 A1) in view of Nishino et al's (Toku-Kai-Hei 7-71907) and Sato (U.S. 4,465,852) is maintained for the reasons of the record in paper no. 11.

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### **Response to Argument**

2. Applicants argue the following issues:

1. Atkins discloses that the catalyst support has less than 0.3 % by weight of impurities unlike claim 1 which requires the feedstock to be rendered substantially free of metallic impurities,
2. Sato has failed to mention the removal of impurities regarding to the use of the ion-exchange resin, but it may be used as catalysts, or not for both,
3. Nishino discloses reactor construction, but no relevance to the question of obviousness,
4. There is no motivation to combine the references to arrive at the present invention.

The applicants' argument have been noted, but these arguments are not persuasive.

First of all, concerning Atkins's failure to disclose the absence of impurities in the feedstock unlike claim 1 which requires the feedstock to be rendered substantially free of metallic impurities, the Examiner has noted applicants' argument. However, the term "substantially" does not clarify how much the feedstock is freed from metallic or metal compound impurities. From this, it does indicate the presence of impurities in modicum in the feedstock. Therefore, the Atkins reference is certainly relevant to the claimed invention.

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Secondly, with respect to the failure of Sato to remark the ion-exchange resin as the purifiers and not to mention it to use as both catalysts and purifiers, the Examiner has noted applicants' argument. However, Sato does point out that various ion exchange resins can be performed as both capacities catalysts and purifiers by reviewing the passages ( col. 1 ,lines 23-31) in which the conventional methods using liquid catalysts are in need of separating products from the catalysts and purifying the products, which can be avoided by using the ion exchange resins. Therefore, the Sato reference is certainly relevant to the claimed invention.

Thirdly, regarding to the lack of Nishino's obviousness typed rejection, the Examiner has noted applicants' argument. However, Nishino et al (Toku-Kai-Hei 7-71907) does teach an apparatus of producing ethyl acetate by reacting ethylene and acetic acid in gas state in the presence of a heteropolyacid catalyst (see page 1, a summary section) in the connected concentric three or three to five long tubes as reactors having each insulated layers of catalysts (see page 5, lines 16- 18). Furthermore, the reactors can be arranged vertically or horizontally (see page 5 , line 33). From this, it becomes clear that Nishino et al discloses not only the reactor construction, but also the production of ethyl acetate by reacting ethylene and acetic acid in gas state in the presence of the heteropolyacid catalyst. Therefore, the Nishino reference is certainly relevant to the claimed invention.

Fourthly, in reference to the lack of motivation to combine the references to arrive at the present invention, the Examiner has noted applicants' argument. However, Atkins et al does disclose a process for the synthesis of esters by reacting an olefin such as ethylene with acetic acid in the presence of the heteropolyacid catalyst on a siliceous support

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derived from synthetic silica in a three-zone concentric tubular reactor equipped with a cooling jacket whereas Nishino et al does teach an apparatus of producing ethyl acetate by reacting ethylene and acetic acid in gas state in the presence of a heteropolyacid catalyst in the connected concentric three or three to five long tubes as reactors having each insulated layers of catalysts ; furthermore, the reactors can be arranged vertically or horizontally and Sato does teach a process for the production of carboxylic acid esters by reacting olefins with carboxylic acids by means of various ion exchange resins as both capacities catalysts and purifiers by reviewing the passages ( col. 1 ,lines 23-31) in which the conventional methods using liquid catalysts are in need of separating products from the catalysts and purifying the products, which can be avoided by using the ion exchange resins.

Therefore, if the skillful artisan in the art had desired to carry out the optimum number of reactors in a form of one long reactor in order to minimize any pressure variations in the reactor system and to increase the conversion ratio to ethyl acetate by controlling the space velocity rate throughout the whole apparatus, and to overcome the disadvantages of using liquid catalysts , it would have been obvious for the skillful artisan in the art to have used Nishino et al's four tubular reactors in series with the Atkins et al's reactor in conjunction with Sato's ion exchange resin for the removal of impurities in the feedstock, thereby optimizing the reaction process as well as increasing the efficiency of the reaction.

Therefore, the Examiner maintains the rejection of all the claims

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***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, <sup>Paul J. Killos</sup> ~~Gary Geist~~, can be reached on (703) 308-<sup>9135</sup>~~4701~~. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

T. Victor Oh

*TV*  
3/22/02

*Paul J. Killos*  
PAUL J. KILLOS  
PRIMARY EXAMINER  
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